Docket No. 87367.2300 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Robert LESSARD	)	
	)	
Serial No.: 10/802,925	)	Group Art Unit: Unassigned
	)	
Filed: May 18, 2004	)	Examiner: Unassigned

For: SYSTEM AND METHOD FOR PRINTING A CODE ON AN ELONGATE ARTICLE AND THE CODE SO PRINTED

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CLAIM FOR PRIORITY

Sir:

Under the provisions of Section 119 of 35 U.S.C., Applicant(s) hereby claim the benefit of the filing date of Canadian Patent No. 2,422,499, filed March 18, 2004, for the above identified United States Patent Application.

In support of Applicant(s) claim for priority, filed herewith is one certified copy of the above.

Respectfully submitted,

BAKER & HOSTETLER LLP

Kenneth J. Sheehan
Reg. No. 36,270

Date: May 14, 2004
Washington Square, Suite 1100
1050 Connecticut Avenue, N.W.
Washington, D.C. 20036
Phone: (202) 861-1500
Fax: (202) 861-1783

Office de la propriété intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An Agency of Industry Canada

Bureau canadien des brevets

Certification

La présente atteste que les documents ci-joints, dont la liste figure ci-dessous, sont des copies authentiques des documents déposés au Bureau des brevets.

Canadian Patent Office

Certification

This is to certify that the documents attached hereto and identified below are true copies of the documents on file in the Patent Office.

Specification and Drawings, as originally filed, with Application for Patent Serial No: **2,422,499**, on March 18, 2003, by **AUTOLOG INC.,** assignee of Robert Lessard, for "System and Method for Printing a Code on an Elongated Article and the Code so Printed".

Agent certificateur/Certifying Officer

March 26, 2004

Date

Canada

OPIC CIPO

SYSTEM AND METHOD FOR PRINTING A CODE ON AN ELONGATE ARTICLE AND THE CODE SO PRINTED

FIELD OF THE INVENTION

The present invention relates to a system and method for printing a code on an elongate article, particularly a piece of wood, and the code so printed.

BACKGROUND OF THE INVENTION

Recently, there have been developments in the field of wood processing in order to automate the various processes involved therein. More particularly, it has become more prevalent to optimize planers, and to automate wood grading stations.

In this context, and in order to ease processing further down the line, it is known for wood graders to grade a piece of wood, which is then marked with a code indicative of the grade given by the grader. Downstream, machines adapted to read the code and act accordingly are provided.

One of the disadvantages of such systems is that the code so printed on the piece of wood takes up too much space, or is printed with a large quantity of ink. This results in an unsightly mark, which will not come off. Alternative embodiments have used UV ink to print the code, but the UV ink has a tendency to fade to yellow in time, again resulting in unsightliness.

Finally, since the code must be printed on the piece of wood at high speeds, it can result it sloppy marks, which are unreadable by the code reading apparatus.

SUMMARY OF THE INVENTION

It is an object of the invention to provide a method and apparatus for marking a piece of wood which obviates the disadvantages of the prior art mentioned above. It is also an object of the invention to provide a code which is discreet, and which is redundant, increasing the accuracy of the reading apparatus.

In accordance with a preferred embodiment of the invention, this object is achieved with a printing system which includes a printing head having at least two micro valves.

In accordance with yet another object of the invention, this object is achieved with a code to be printed on a piece of wood, said code comprising a longitudinal area within which a plurality of lines may or may not be printed. Furthermore, the code is preferably printed at least twice simultaneously, the at least two codes being laterally spaced from each other, to provide redundancy.

BRIEF DESCRIPTION OF THE FIGURES

The present invention will be better understood after reading a description of a preferred embodiment thereof, made in reference to the following drawings in which:

Figure 1 is a schematic representation of the printing system according to a preferred embodiment of the invention;

Figure 2 is a photograph of a plurality of wood boards printed with the system of Figure 1; and

Figure 3 is a representation of a code word according to a preferred embodiment of the invention.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

Referring now to Fig. 1, there is shown a schematic representation of the system for printing a code on an elongate article.

The system 10 comprises an ink unit 11, a printing head 13 and a controller 15.

The ink unit 11, in a preferred embodiment, includes an ink reservoir 21, preferably of the type "bag-in-box". Other components include a return valve 23, filter 25, pump 27, air eliminator 29, bleeding valve 31 associated with reservoir 33, pressure transducer 35, pressure reservoir 37 and main valve 39, all interconnected in the usual manner.

The printing head 13 includes a filter 41 and at least one, preferably three, valves 43. In a preferred embodiment, the valves 43 are micro-valves, which are adapted to open and close rapidly, spraying droplets of ink. The three valves are also preferably aligned with each other, and laterally spaced apart.

A controller 15 controls all of the elements of the ink unit 11, and the printing head 13.

The code that is to be printed takes up a predetermined length (footprint) on the piece of wood. The code word is comprised of a plurality of "bits", which may be on (presence of the bit) or off (absence of the bit). In a preferred embodiment, each bit is a longitudinal line, preferably printed with UV ink.

The code word according to a preferred embodiment of the invention is comprised of ten bits. However, it will be appreciated that more or less bits may also fulfill the objects of the present invention, according to the needs of the particular user.

In another aspect of the invention, as shown in Fig. 2, the code word is printed at least twice simultaneously, where each code is laterally spaced from the other one. In a more preferred embodiment, the code is printed three times, insuring better redundancy.

This results in a small area of wood required to print the wood, and built-in redundancy.

Referring now to Fig. 3, there is shown three code words 51 printed simultaneously on a piece of wood 100. As can be seen, bit 1 is on, bit 2 is off, bit 3 is off, bit 4 is on, etc. If the code word were printed only once, errors could occur due to variations on the texture of the wood, presence of knots, etc. By printing the code at least twice, and preferably three times, the accuracy when reading the code downstream is further increased.

The ink used for the apparatus is preferably UV as mentioned previously. Furthermore, advantageous characteristics include fast drying, so that less ink is required and it must be adapted to be readable on wood.

Although the present invention has been explained hereinabove by way of a preferred embodiment thereof, it should be pointed out that any modifications to this preferred embodiment within the scope of the appended claims is not deemed to alter or change the nature and scope of the present invention.

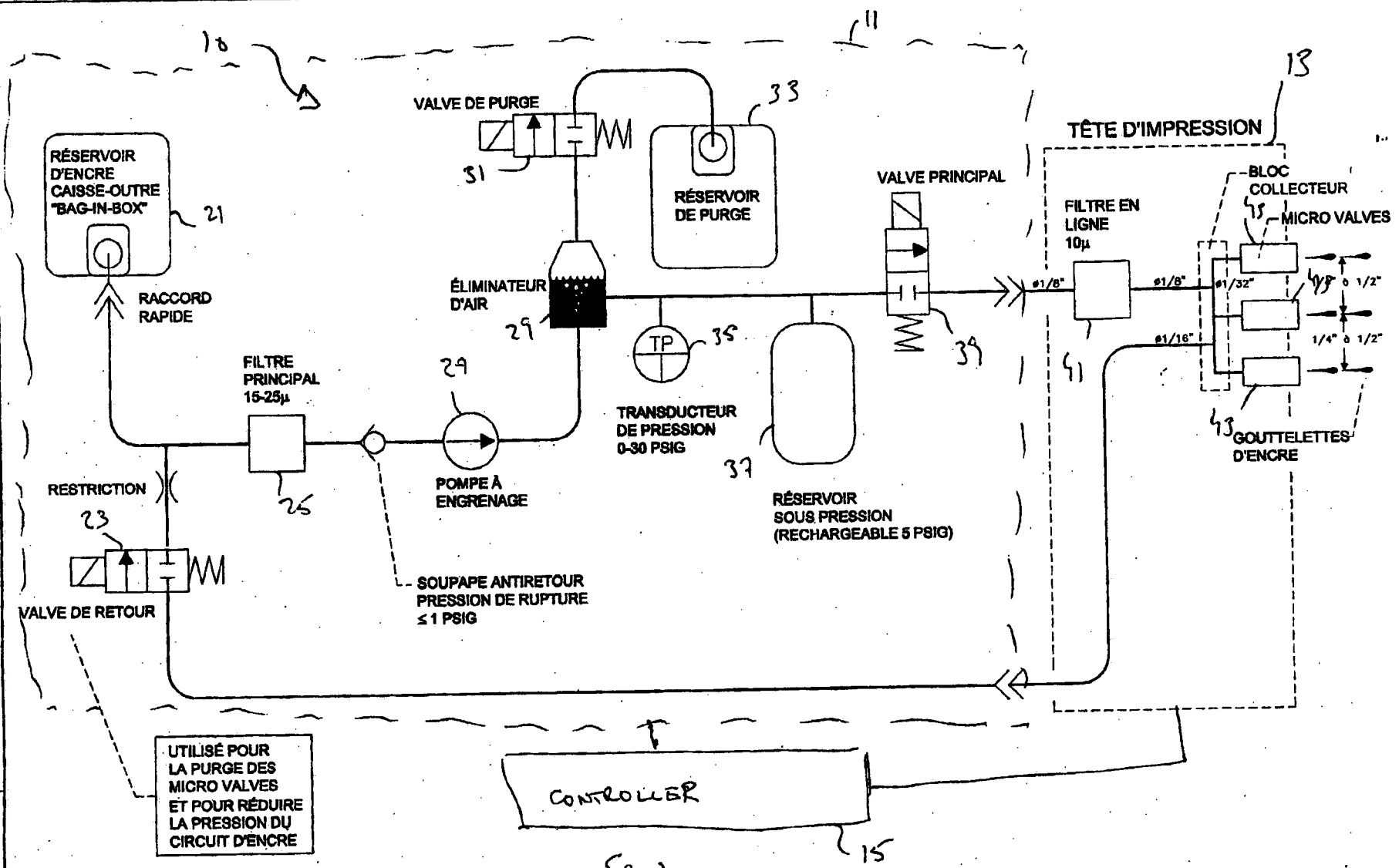


Fig. 1

CA 02422499 2003-03-18

No.	DATE	LOC	PAR	DESCRIPTION
REVISION				

CE DESSIN EST CONFIDENTIEL ET NE DOIT PAS ÊTRE REPRODUIT OU UTILISÉ SANS LE CONSENTEMENT DE AUTOLOG Inc.

AUTOLOG®
Automatisation de scierie
Autolog Gestion de la production inc.
3477 Industriel, Laval, Qc, H7L 4S3
tel.: (450) 967-0766
fax. (450) 967-0769
www.autolog.com

TITRE	SCHÉMA DE FONCTIONNEMENT CIRCUIT D'ÉCOULEMENT DE L'ENCRE
SYSTÈME	IMPRIMANTE A JET D'ENCRE POUR CODE D'IDENTIFICATION DES PIÈCES DE BOIS
CLIENT	
DESSINÉ PAR: J.PETIT	DATE 14-03-2003 · No. PROJET AUT-1631 · No. DESSIN A10018-01 · No. REV. 1

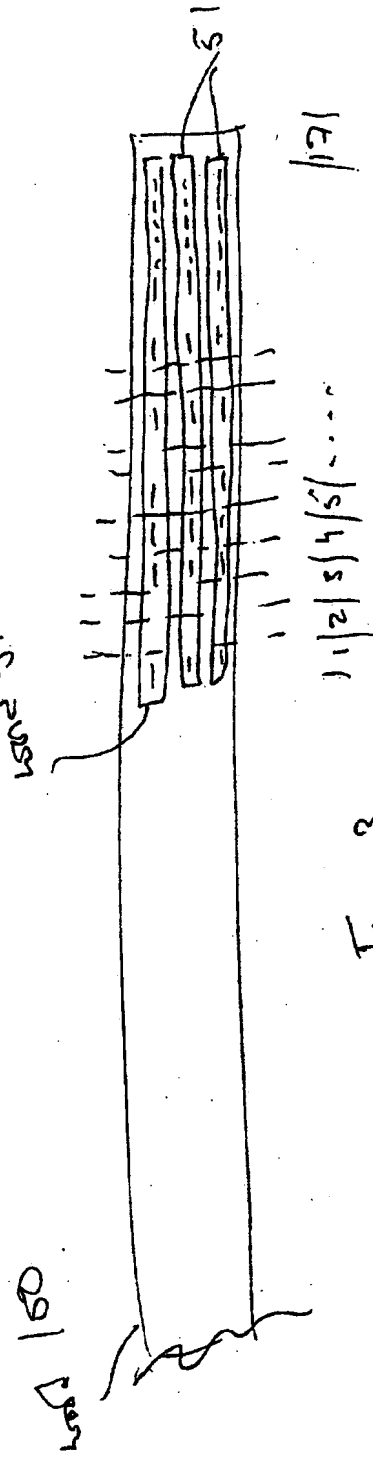


Fig. 3

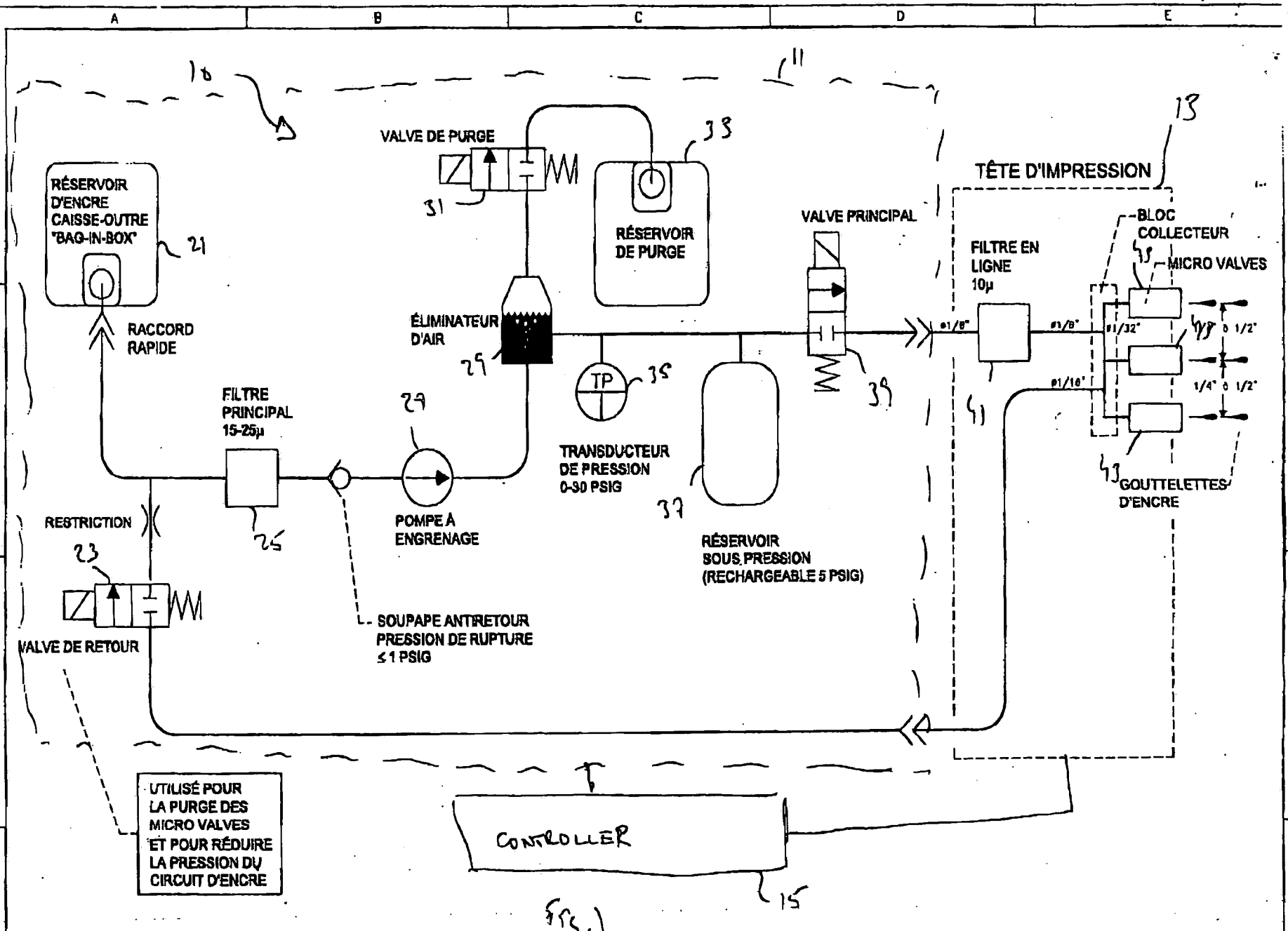
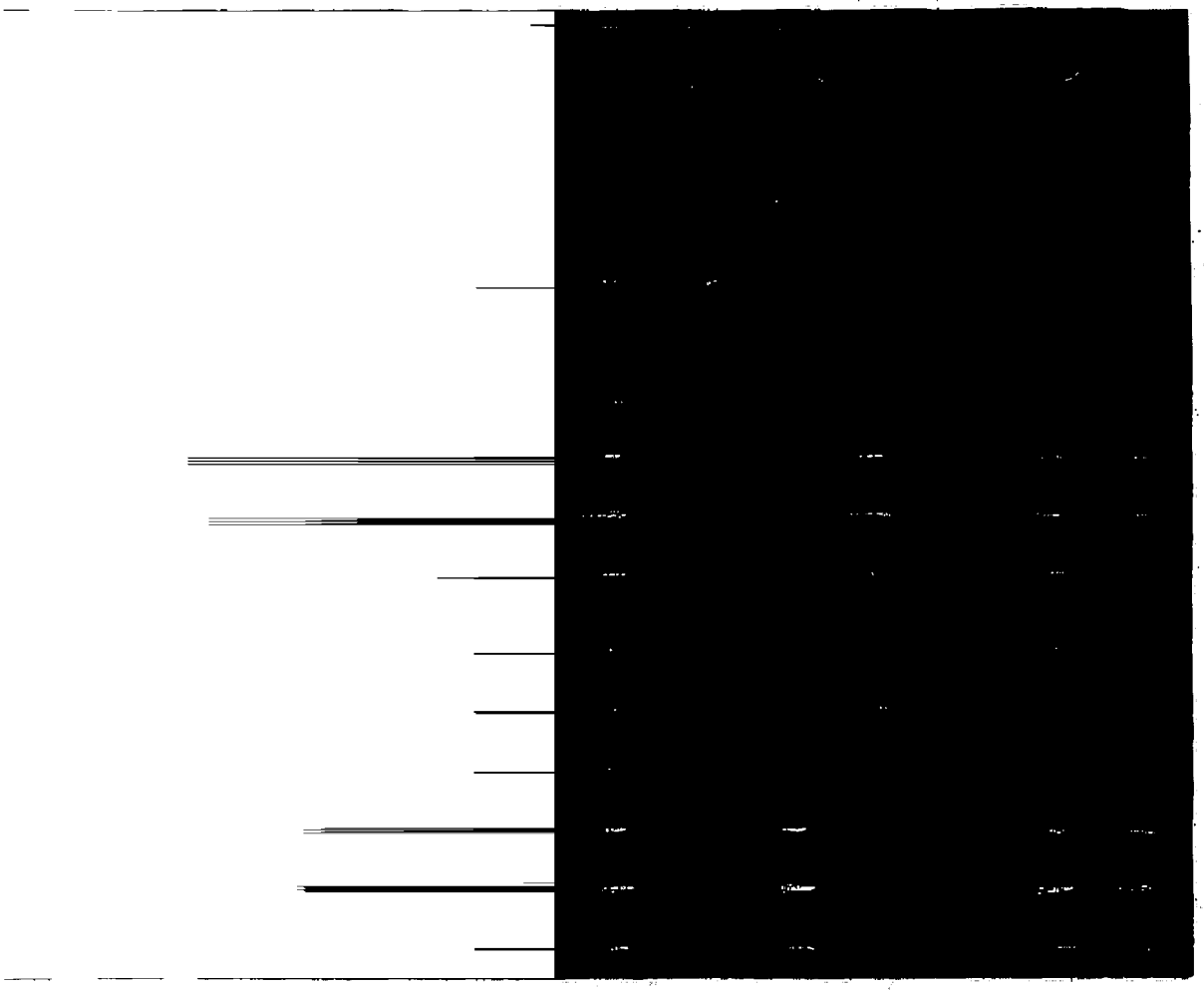


Fig. 1

No.	DATE	LOC	PAR	DESCRIPTION
REVISION				

AUTOLOG®
Automatisation de saisie
Autolog Gestion de la production inc.
3477 Industriel, Laval, Qc, H7L 4S3
tel.: (450) 967-0766
fax. (450) 967-0769
www.autolog.com

TITRE	SCHEMA DE FONCTIONNEMENT CIRCUIT D'ECOULEMENT DE L'ENCRE
SYSTÈME	IMPRIMANTE A JET D'ENCRE POUR CODE D'IDENTIFICATION DES PIÈCES DE BOIS
CLIENT	
DESSINÉ PAR: J.PETIT	DATE 14-03-2003 / No. PROJET AUT-1631 / No. DESSIN A10018-01 / No. REV. 1



EXEMPLE
D'IMPRESSION

Fig. 2

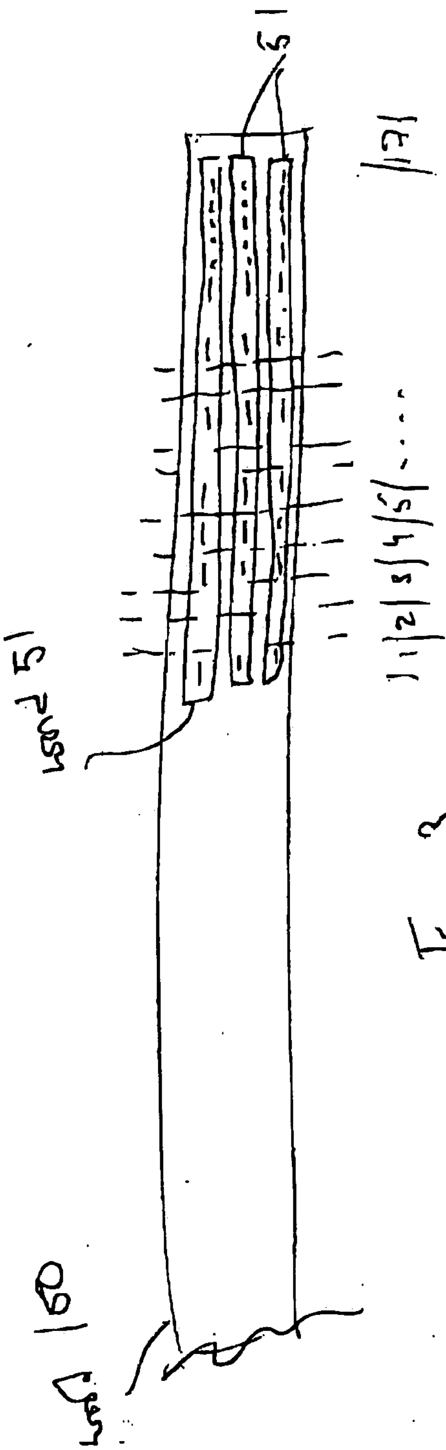


Fig. 3